

Fact Sheet:

How will we design the fixed wireless network?

Fixed wireless background

Fixed wireless systems have a long history of being used for voice and data communications, generally supporting networks operated by phone companies, cable TV companies, utilities and railways. The name 'fixed wireless' explains the way signals are delivered to stationary, or 'fixed' antennas and facilities mounted on buildings, homes and other structures.

Fixed wireless is different to current mobile wireless networks, which deliver varying speeds and reception depending on how many people are moving in and out of the area and whether they are using the network for low volume e-mail or high volume downloads or video services.

The National Broadband Network's (NBN) fixed wireless network uses advanced technology called LTE (commonly referred to as 4G). The network has been designed to reduce the impact of mobile wireless variables by setting a limit on the number of premises serviced by each fixed wireless facility. People's usage of the network will still vary, but the set number of serviced premises in each area means that the bandwidth available to each household is designed to be consistent, even in peak times of use*.

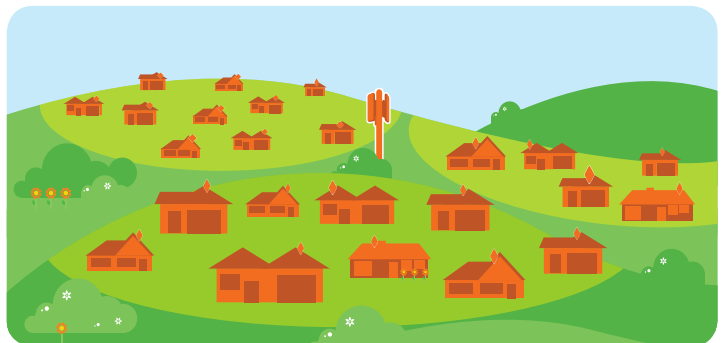
To be able to achieve this each NBN fixed wireless facility needs to be situated reasonably close to the homes and business which will receive NBN's fixed wireless network. Each customer will have a small antenna installed on the outside of their home or business, in direct line of sight to the fixed wireless facility. This setup allows for greater consistency in the speed and quality of service that can be delivered to each premises*.

How is the fixed wireless facility designed?

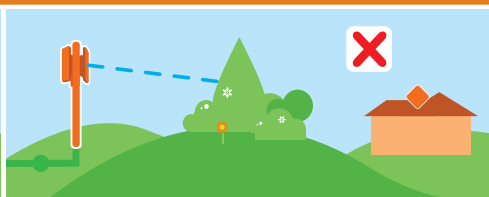
To achieve optimal fixed wireless coverage to the greatest number of local premises, NBN Co must locate each fixed wireless facility reasonably close to the premises that it is intended to service.

A typical fixed wireless facility will include three antennas mounted above the surrounding area. (see diagram to the right). Each antenna covers a set area to maximise signal strength.

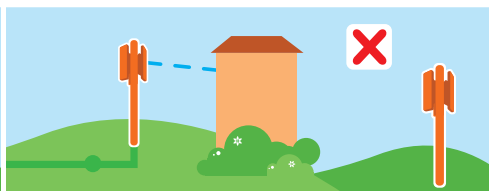
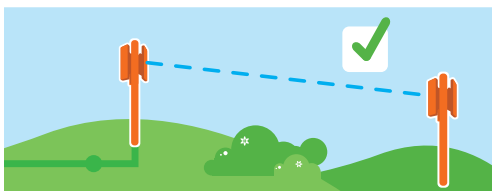
These network antennas communicate to a small antenna installed on the roof of each customer's home or business.



There is a range of other factors that can influence quality of the fixed wireless service, which NBN Co has to take into account when choosing a site with the right characteristics. Achieving a clear 'line of sight' free from obstructions like trees, hills or other buildings must be considered in the following ways:



- There must be 'line of sight' between the antenna at the top of the fixed wireless facility and the small antenna located on the top of an end user's premises.



- There must also be 'line of sight' from one fixed wireless facility to another within the fixed wireless network to allow for transmission of data across the network.

- It is strongly preferable for the NBN fixed wireless facility be located clear of physical obstructions, to be centrally located and within a fairly equal 'fixed' range of all potential end users.

The fixed wireless network

Although fixed wireless facilities are submitted to Council as standalone developments from a planning perspective, they are highly interdependent. Each fixed wireless facility is connected to another to form a chain of facilities that link back to the fibre network. This is called the 'transmission network'.

The transmission network requires line of sight from facility to facility until it reaches the fibre network. The fixed wireless network will remain unconnected without the transmission network and a break in this chain can have flow on effects to multiple communities.

Co-location of facilities

Wherever possible, NBN Co will actively look to use existing infrastructure to provide a fixed wireless service. This is often referred to as 'co-location.'

Potential co-location sites include existing mobile facilities and other similar structures such as water towers or silos. For an existing facility to be considered as a viable co-location option, it must be positioned in a way that allows NBN Co to provide the required fixed wireless coverage. Adequate space for NBN Co's antennas at the required height must also be available.

NBN Co plans to inform Council and place a notice in the local newspaper to let people know that an NBN fixed wireless facility is to be established in the area.

New NBN fixed wireless facilities

NBN Co will only propose a new structure to provide local fixed wireless services if there is no opportunity to co-locate on an existing structure. When assessing potential locations for new facilities, NBN Co will consider several key factors to determine if a new facility is feasible, including technical, planning and property considerations:

- **Engineering requirements and service coverage**
NBN Co's engineers will research the region to determine what locations could provide good, reliable service provision, maintaining clear line of site to surrounding customers and to adjoining network facilities. Additionally, engineers also assess the availability of low voltage power at proposed locations.
- **Planning requirements**
Planning considerations, including zoning of the land and its current use, can be influential in the site selection process. NBN Co carefully considers the visual amenity associated with the new facility, proximity to other structures and land uses, and will endeavour to find a location that satisfies all of the relevant Council and State government planning criteria.
- **Property matters and the ability to secure a lease**
NBN Co must secure a lease of land based on negotiation and agreement with the land owner. A proposal will not proceed without such an agreement.

What happens when a site has been chosen?

Once a site has been selected and plans drawn up for a proposed new fixed wireless facility, the proposal will be submitted to the local Council. Residents will then have the opportunity to comment on the proposal in accordance with the relevant State planning and development assessment processes.

NBN Co will always adhere to statutory consultation requirements and typically undertakes broader consultation than is required by the planning legislation for new structures.

Construction of a new fixed wireless facility will generally commence following the completion of all relevant planning and consultation processes.

For more information:

If you would like to find out more general information about the NBN and the fixed wireless service, please phone **1800 OUR NBN** (1800 687 626).

If you want to connect to the NBN you will need to speak to a service provider. Maps showing the current rollout plans for the fibre and fixed wireless services areas, as well as further information about the NBN rollout are available on the NBN Co website at: www.nbnco.com.au

* We're designing the NBN to provide these speeds to our wholesale customers, telephone and internet service providers. Your experience including the speeds actually achieved over the NBN depends on some factors outside our control like your equipment quality, software, broadband plans and how your provider designs its network.